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IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE CITY AND COUNTY OF SAN FRANCISCO

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MILTON J. HOROWITZ and SHIRLEY HOROWITZ,

Plaintiffs,

vs. No. 965245

RAYBESTOS-MANHATTAN, INC., et al.,

Defendants.

_____/

VOLUME II

DEPOSITION OF
MELVIN W. FIRST, Sc.D.

_____
Tuesday, August 22, 1995

REPORTED BY: MARK W. BANTA, CSR #6034

TOOKER & ANTZ
CERTIFIED SHORTHAND REPORTERS
131 Steuart Street, Suite 201
San Francisco, California 94105

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BE IT REMEMBERED on Tuesday, August 22, 1995, commencing at 9:03 a.m. thereof, at the Law Offices of Wartnick, Chaber, Harowitz, Smith & Tigerman, 101 California Street, 26th Floor, San Francisco, California, before me, MARK W. BANTA, Certified Shorthand Reporter No. 6034 for the State of California, personally appeared

MELVIN W. FIRST, Sc.D.,

called as a witness, who having been first duly sworn, was examined and interrogated as hereinafter set forth.

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A P P E A R A N C E S

WARTNICK, CHABER, HAROWITZ, SMITH & TIGERMAN, 101 California Street, 26th Floor, San Francisco, California 94111, represented by STEPHEN M. TIGERMAN, Attorney at Law, appeared as counsel on behalf of the Plaintiff.

SHOOK, HARDY & BACON, 1200 Main Street, Kansas City, Missouri 64105, represented by MARK J. EVANS, Attorney at Law, appeared as counsel on behalf of the Defendant Lorillard, Inc.

PREUSS, WALKER & SHANAGHER, 595 Market Street, 16th Floor, San Francisco, California 94105, represented by CYNTHIA C. ROENISCH, Attorney at Law, appeared as counsel on behalf of the Defendant Hollingsworth & Vose Company.

NUTTER, MCCLENNEN & FISH, One International Plaza,

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Boston, Massachusetts 02110, represented by STEPHEN J. BRAKE, Attorney at Law, appeared as counsel on behalf of the

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Defendant Hollingsworth & Vose Company.
ALSO PRESENT: GAREY COHEN and MADELINE CHABER,
representing Wartnick, Chaber, Harowitz, Smith & Tigerman.

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EXAMINATION BY MR. TIGERMAN

MR. TIGERMAN: Q. Good morning, sir. We are here
for the continuation of your deposition.
Since the time of your last deposition, have you
reviewed any additional materials?
A. No.
Q. Since the time of our last deposition, have you
had any discussions with anybody, including counsel for the
defendants, about any of the testimony of any of the
witnesses in this case?
A. No.
Q. Have you had any discussions with counsel at all
since the last deposition?
A. Yes.
Q. And how many discussions have you had?
A. One.
Q. And how long did that last?
A. An hour and a half.
Q. And what was discussed in that discussion?

A. We reviewed my testimony.
Q. And what was reviewed in particular?
A. In particular, the content of Dr. Longo's
experiments and his conclusions; the Hallgren testimony and
its conclusions.
Q. Anything else?
A. Just general discussion.
Q. Anything else that you can recall from the general
discussion?
A. Nothing stands out.
Q. And what was discussed regarding the testimony of
the witnesses?
MR. EVANS: I'm not sure that he said there was
any discussion about the testimony of the witnesses.
MR. TIGERMAN: Well, he did, so why don't you
answer the question.
MR. BRAKE: I tell you what --
MR. EVANS: Can you answer the question?
MR. BRAKE: You don't have a right to come in and
ask the witness what the lawyers who prepared him

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in the
21 case told him.
22 MR. TIGERMAN: That's baloney.
23 MR. BRAKE: It's like asking, "Tell us what the
24 other lawyer's theory of the case is. Tell us what you're
25 going to be asked on direct."

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1 MR. TIGERMAN: Come on, Counsel. How long have
2 you been practicing law in California? Quite a long time.
3 I'm sure you know this is the law. Once you tender this
4 expert, you have no work product privilege with respect to
5 this expert.
6 MR. BRAKE: You can't come in and ask a witness to
7 give a mental impression of the other lawyer.
8 MR. TIGERMAN: Do you want to make an objection?
9 Q. What was discussed between you and counsel
10 regarding the testimony of the witnesses?
11 A. We reviewed his work product, his experimental
12 information, the work that he had done in 1950 -- '49 --
13 '89. Let me start again. '89-91, and the later
14 experiments. And we discussed the data that he had come up
15 with, and we discussed certain objections that I had to the
16 methods that he used and his interpretation of the data.
17 Q. What objections were discussed?
18 A. There are a large number of them. Do you want to
19 hear them all?
20 Q. Yes, let's go through them. Sure.
21 A. Well, first of all, he didn't use a smoking
22 machine, but he used manual methods which gave his results a
23 great deal of variability, far more than one would be
24 willing to accept as a scientific test of anything.
25 Q. Okay. Next?

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1 A. Next, he smoked the cigarettes vertically upward.
2 And the reason he did this was he wanted to collect whatever
3 he could on a grid to put directly into the electron

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microscope. And as a consequence of this, material would drop out of the cigarette and he would get very variable information on this attempt. In fact, he abandoned everything that he learned from that.

Secondly, he ignited the cigarette without puffing on it. This resulted in the formation of a carbon coating over the top of the cigarette that made it very difficult to draw air through it.

Q. Okay. Next?

A. Next, he manipulated the cigarette in a very gross manner so that a great deal of material that might have been in the filter would have been dislodged, quite different than what someone smoking it would be likely to do.

Q. All right. Anything else?

A. His method of analysis was not according to the EPA method which he invoked as his standard.

Q. What do you mean by that?

A. What I mean by that is he didn't follow the protocol.

Q. And what is it about the protocol that he did not follow? Or if it's easier, that he did follow?

A. Well, he -- the EPA protocol which he claimed to

be following calls for a sample to be deposited directly on a cellulose filter. What he did instead was to take the contents of the syringe that he used in place of a smoking machine and he removed the material there in a liquid. He then proceeded to sonicate it to disburse it. He then refiltered it and went through a number of maneuvers that are not in the standard protocol.

Q. Anything else that you talked about as objections to the Longo experiments?

A. Yes. First of all, he was using one package of cigarettes that had been recovered with no known pedigree or history. There's no way of knowing where that package had been, what had happened to it and whether it was in the same condition as it was in 1942 --

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Q. '52?
A. Pardon me. '52 to '55, somewhere in that period when it was manufactured.
So two things are wrong here. One is we have an inadequate sample of the production of 9 million -- 9 billion cigarettes.
Q. Okay.
A. Secondly, the package had been not -- had not been stored in an approved manner. And this was evident by the fact that the photographs of the package showed it to be concave on all its surfaces, indicating that the material

inside had shrunk away and caused the pack to collapse into it.
Q. Any other objections to the Longo experiments that were discussed?
A. I think that concludes my objections to his experimental.
Q. Any other discussions between you and counsel between the time of the last deposition and this continued edition of the deposition regarding the Longo studies?
A. I think that covers -- covers it substantially.
Q. You said that you had also had discussion with counsel between the last deposition and this edition of the deposition regarding the testimony of one other witness. Which witness was that?
A. Hallgren.
Q. And what was discussed between you and counsel regarding the Hallgren testimony?
A. There was no discussion of the Hallgren testimony --
Q. What was --
A. -- as of this case.
Q. What was discussed regarding him?
A. What we did discussed was the Fullam experiments as reported by Hallgren and what these experiments that Fullam had conducted represented.

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Q. All right. Let's talk about the Longo experiments. How many different series of experiments did Longo do?

A. He did three separate experiments.

Q. All right. And the dates of those experiments were?

A. The first one as I recall was '89-91 period.

Q. And the next?

A. The next one was, as I recall, '92.

Q. And the final?

A. I believe it was '94.

Q. All right.

A. Those are certainly approximately correct.

Q. The failure to use a smoking machine, did that exist in the '94 experiment?

A. No. In the '94 experiment he did use a smoking machine.

Q. The vertical placement of the cigarette, did that occur in the '94 experiment?

A. No. He used a horizontal at that time.

Q. The ignition without puffing, did that occur in the '94 experiment?

A. No.

Q. The manipulation of the cigarettes which you believe was inappropriate, did that occur in the '94

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experiment?

A. I believe it did, yes.

Q. And what is it about the '94 experiment that you believe represents an inappropriate manipulation of the cigarette?

A. Well, it was put into the holder in a way that made it necessary to twist it into the holder.

Q. And was that apparent on the videotape?

A. It appeared to be, yes.

Q. How many cigarettes were analyzed in the '94 experiment?

A. Are you speaking of the cigarettes that dated from 1950s?

Q. Yes.

A. Two.

Q. And did he inappropriately manipulate both cigarettes in the '94 experiment?

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18 A. I cannot answer that.
19 Q. The failure to use the EPA protocol, did that
20 occur in the '94 experiment?
21 A. Yes.
22 Q. Did it occur in the '92 experiment?
23 A. Yes.
24 Q. And the '89 to '91 experiment?
25 A. Yes.

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1 Q. Now, how many different protocols does the EPA
2 have?
3 A. They have --
4 MR. EVANS: I'll object. Vague and ambiguous.
5 With respect to what?
6 MR. TIGERMAN: Q. With respect to the analysis of
7 the existence or non-existence of asbestos fibers by
8 electron microscopy.
9 MR. EVANS: Maybe you should repeat the whole
10 question.
11 Q. How many different standards does the EPA have
12 with respect to electron microscopy analysis of asbestos
13 fibers?
14 A. They have a preliminary examination, and then they
15 have a protocol for the numeration.
16 Q. And does he meet the standards of the preliminary
17 examination?
18 A. I do not know. He didn't report that.
19 Q. Have you read Dr. Longo's testimony from 1994
20 which you provided to me at your first deposition?
21 A. Yes.
22 Q. And do you recall discussion in that deposition of
23 the fact that the EPA has two different types of standards
24 for electron microscopy?
25 A. I don't recall that.

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1 Q. Do you know whether or not the EPA has more than
2 one standard for electron microscopic analysis of asbestos
3 fibers?
4 A. I'm familiar with the one that's used for the
5 standard protocol.
6 Q. Have you contacted the EPA recently to

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find out
whether they have more than one?
A. I have not.
Q. Have you done any research of the EPA standards in
the last several years to see if they have more than one?
A. I have not.
Q. You also discussed the fact that the one pack of
cigarettes had no known history and that, as a part of that,
you felt that this was an inadequate sample. Is that
correct?
A. That is what I just stated.
Q. All right. Is it true that these cigarettes are
manufactured according to a patent?
A. If you're referring to the filter, the filter had
been patented. The cigarettes, I'm not familiar with.
Q. All right. And the patent is filed with the U.S.
Patent Office? Is that correct?
MR. EVANS: Objection. To the extent that you
know.
THE WITNESS: Well, if you have a U.S. patent, I

assume it's obvious that it has been filed with the Patent
Office and they have issued you a patent.
MR. TIGERMAN: Q. That patent is a recipe, so to
speak, for the manufacture of the filter? Is that correct?
MR. EVANS: Objection. Calls for speculation. To
the extent you know, you can answer.
THE WITNESS: It calls for a method for making a
filter, yes.
MR. TIGERMAN: Q. And the method for which --
strike that.
And the method which is described for the making
of the filter in the patent, do you have any evidence that
the actual cigarettes and filters which were tested by
Dr. Longo did not meet that formula or that method?
A. I have no information one way or the other.
Q. Have you any evidence from any source that there
was any variation in the manner or the technique by

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which
18 the filters were manufactured for the Kent Micronite
19 cigarettes during this period that we're talking about, '52
20 to '55?
21 A. As compared to what?
22 Q. As compared to each other. Was there variation
23 between them?
24 A. I have no idea.
25 Q. Were they different sizes during '52 to '55?

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1 A. In cigarettes or --
2 Q. In the filter?
3 A. -- in filters or what?
4 Q. In the filter?
5 A. I do not know.
6 Q. Were they different widths?
7 A. For the filter?
8 Q. Yes.
9 A. I do not know.
10 Q. Were they different compactness?
11 A. I do not know.
12 Q. Do you have any evidence that different types of
13 papers were used during the '52 to '55 period for the
14 filters on the Kent Micronite cigarettes?
15 A. I have no evidence of that kind.
16 Q. Do you have any evidence that the packing material
17 that was used inside of the filter was different between
18 Kent Micronite cigarettes, '52 to '55?
19 A. I have no knowledge of that.
20 Q. You also said that you objected to the fact that
21 at least in one of the Dr. Longo experiments the cigarette
22 was vertically placed. Was it just one of those series of
23 experiments or was it more than one series?
24 A. It was in the first series.
25 Q. Now, do you hold yourself out as an expert in

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1 smoking behavior?
2 MR. EVANS: Objection. Vague and ambiguous. What
3 do you mean by smoking behavior?
4 MR. TIGERMAN: Q. Do you hold yourself out as an
5 expert in the behavior of consumers in the smoking of
6 cigarettes?

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MR. EVANS: Do you know what he means? Do you understand what he means?
THE WITNESS: I think I do understand what he means. And my answer is I know a great deal about it.
MR. TIGERMAN: Q. And from what do you have information regarding the behavior of smokers?
A. Well, first of all, I was a smoker for 20 years, so I have personal experience.
Secondly, I have done research on how people smoke cigarettes.
And thirdly, I have read a great deal about the effects of smoking on physiology.
Q. Aside from your own experience with smoking cigarettes -- strike that.
With respect to your own experience in smoking cigarettes, did you ever smoke in bed?
A. Yes.
Q. Did you ever smoke own your back?
A. No.

Q. Have you ever seen anybody smoke in bed, other than perhaps in a movie?
A. I don't -- I don't know that many people that I've observe in bed.
Q. Did you ever smoke reclining?
A. Seldom.
Q. Did you ever smoke in a recliner chair?
A. No. Never owned one.
Q. Did you ever see anybody smoke reclining?
A. I don't recall that.
Q. Did you ever see anybody smoke with their head tilted back?
A. I have no recollection of that.
Q. Did you ever smoke with your head tilted back?
A. I have no recollection.
Q. Have you ever seen anybody smoke with their head tilted back so they could blow the smoke in the air and not other people's faces?
A. Well, I know people blow smoke in the air. Whether they have their head up or down I'm not sure.
Q. Have you ever read any studies regarding the percentage of people that smoke in bed?

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23 A. I do know that that's not a recommended procedure,
24 because you're liable to become incinerated in the process.
25 Q. All right. Have you ever read any studies about

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1 how many people actually will smoke on their backs?
2 A. I have not.
3 Q. Have you ever read any studies about the number of
4 people that smoke reclining?
5 A. Smoke -- I have no information on that.
6 Q. Have you ever interviewed people about the methods
7 or the techniques -- strike that.
8 Have you ever interviewed people regarding their
9 behavior -- regarding their posture when smoking?
10 A. No.
11 Q. Are you aware of any studies that have been done
12 by anybody regarding posture during smoking?
13 A. I'm not aware of any.
14 Q. And I take it you have never written anything
15 regarding posture of smokers?
16 A. I have not.
17 Q. You said that you've done research regarding how
18 people smoke. What research have you done?
19 A. When the low tar, low nicotine cigarettes were
20 first produced, the question came up regarding whether
21 people would compensate by smoking more cigarettes or by
22 smoking in a different pattern. And in order to investigate
23 that, I was a member of a research team that did the study.
24 Q. During that study was any observation made of the
25 manner in which people actually handled cigarettes?

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1 A. No. No, that was not part of the study.
2 Q. Was there any research done during that study as
3 to the percentage of people that will manipulate a filter
4 with their fingers while they smoke it?
5 A. That was not an objective of the study.
6 Q. Was there any research during that study as to the
7 number of people that will bite on a filter if they are
8 holding it in their mouth without their hands?

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A. That was not an objective of the study.
Q. Now, are you aware of any literature regarding the percentage of people who will bite on a filter?
A. I'm not aware of any literature on that subject.
Q. Are you aware of any research on that subject?
A. I am not.
Q. Are you aware of any literature regarding the number of people or percentage of people who will manipulate a filter while they hold the cigarette?
A. I don't know what you mean by manipulate.
Q. Roll it back and forth in their fingers.
A. I have no information on that.
Q. Are you aware of any articles regarding that?
A. I am not.
Q. Have you attempted to ever do any surveys along those lines?
A. I have not.

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Q. Are you aware of anybody who has attempted to do any surveys along those lines?
A. Well, I know Dr. Longo did some studies on that. Or let me put it another way, I know that he was concerned with that.
Q. And do you have any criticisms regarding the efforts he made to investigate that?
A. Well, I have two.
In the first place, he rolled the cigarettes in an uncontrolled manner, as just somebody with their fingers rolled them.
Secondly, he pinched them in an uncontrolled manner.
And the third criticism I have is he showed exactly the wrong thing that he was trying to show, namely, the cigarettes that were not manipulated had twice as many fibers according to his measurement as the ones that were manipulated.
Q. Do you believe -- go ahead.
A. Which seemed to me he was on the wrong track.
Q. Well, you do you believe that he was trying to show manipulation released more fibers?

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A. That is my impression.
Q. And what do you base that on, other than the fact that he manipulated the filter?

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A. My reasoning as to what he was trying to do.
Q. Well, do you know what was in his mind while he was doing that?
A. I have no idea what was in his mind.
MR. BRAKE: We know what was in Dr. Slade -- you really need a good faith effort. It came in evidence Dr. Slade gave Dr. Longo a note telling him exactly what you are asking about, to increase the number of fibers.

MS. CHABER: He said to see if there was an increase of fibers. And what it turned out is there wasn't an increase of delivery of fibers. But to say that he purposely set out to increase the fibers is a misrepresentation.
MR. BRAKE: Longo agrees --
MS. CHABER: He did not.
MR. BRAKE: -- he said precisely that's what he was wanting him to do.
MS. CHABER: He did not. He said to see if there was an increase in increase of fibers.
MR. TIGERMAN: Q. Sir, I guess the issue is when Dr. Longo manipulated the filter, do you know whether he set out to increase the number of fibers released or whether or not he set out only to investigate as to whether or not there were more fibers released?
A. Well, as you said, I cannot read his mind, and I

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don't know.
Q. Now, as to the issue of the manipulation, I believe you previously testified that by rolling the filter in one's hands, one would tend only to compact the material within the filter further. Is that true?
MR. EVANS: Is it true that he testified to that?

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MR. TIGERMAN: Q. That you said that, yes. That rolling it would compress it?
MR. EVANS: He's asking you if that's what you testified to before, if you've testified --
THE WITNESS: I don't believe I testified to that, no.
MR. TIGERMAN: Q. All right. Do you believe that manipulating the filter, rolling the filter in one's hands, would only tend to compress the matter within the filter further?
A. No, I don't believe that.
Q. Sir, have you ever rolled a cigarette around in your hands to see what happens to the filter material?
A. I stopped smoking in 1952, and I cannot recall that detail.
Q. Are you aware of anybody ever rolling a filter around in their hands and then studying the effect that that has on the material within the filter?
A. I have no knowledge of that.

Q. Sir, if you roll around the material, if you roll around the filter, isn't it true that the material within the filter will protrude from the end of the paper?
A. I think it depends on what you do to it as to whether it will protrude or whether it will compact or anything else. It's primarily a matter of how you manipulate it.
Q. Isn't it possible if one were to roll the filter around in their hands enough that it would actually cause the filter material to protrude from the end of the paper?
A. I think it's possible to do that, yes.
Q. Now, with respect to the filter material, if it is protruding from the end of the paper can you tell me whether or not that makes it more or less likely to create fiber release?
A. In what manner are you referring to fiber release?
Q. If the material is no longer entirely surrounded

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by paper when a smoker is smoking that cigarette, can you tell me whether or not it is more or less likely that the fibers which are protruding from the end will become dislodged?

MR. EVANS: I'll object as vague and ambiguous. Would you repeat the question?

(Question read.)

MR. EVANS: Do you understand the question?

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THE WITNESS: I think so.

MR. EVANS: Okay.

THE WITNESS: It depends on what you mean by dislodged. Would you like to explain that a little more?

MR. TIGERMAN: Q. Become respirable?

A. Now you have pinned it down to one type of dislodgement, and the answer is no.

Q. And why do you believe that?

A. Because the fibers adhere to each other very tenaciously, number one.

And secondly, the air flow rate at which one puffs a cigarette is inadequate to aerosolize the fibers that are of hygienic concern.

Q. If the fibers are no longer entirely surrounded by paper, can that affect the compactness of those fibers which might be protruding from the end of the paper?

A. Well, now, when you say the fibers are not surrounded by paper, of course, you don't mean totally surrounded. You mean that they are protruding somewhat from the end of the filter.

Q. That's correct.

A. And they never have been totally surrounded by paper. It's on the periphery.

Q. I understand that.

A. All right. So would you just restate your

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question?

Q. Sure. If there are fibers from the filter which are protruding from the end of the paper, might

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that affect
4 the compactness of those fibers as they relate to one
5 another?
6 A. I believe it would depend greatly on the amount of
7 protrusion that has been induced by the mechanical methods
8 you are describing.
9 Q. If there is a sufficient amount of protrusion, can
10 that affect the compactness of the fibers which are
11 protruding?
12 MR. EVANS: Vague and ambiguous as to what you
13 mean by significant.
14 MR. TIGERMAN: Sufficient.
15 MR. EVANS: Or sufficient.
16 MR. TIGERMAN: Q. Go ahead.
17 MR. EVANS: Either way.
18 MR. TIGERMAN: Well, he said it depends on how
19 much.
20 Q. How much is necessary before those fibers that are
21 sticking out of the end of the paper are no longer compacted
22 as are the fibers within the cylinder?
23 A. Well, it's perfectly possible to manipulate the
24 filter in such a way that you shred it into small pieces,
25 and if those are protruding from the end of the cigarette,

1 they'll drop off into the smoker's mouth.
2 Q. Sir, you said that one of the reasons why fibers
3 would not ordinarily be released in your opinion is that --
4 is it that the fibers tend to adhere to one another? Or
5 that the molecules within the fibers tend to adhere to one
6 another?
7 A. Well, the fibers, of course, are composed of
8 molecules, so we're talking about the same thing.
9 Q. All right. And have you read any patents for the
10 manufacture of this type of filter?
11 A. I've read the patents, yes.
12 Q. And are you aware of any patents which have been
13 written about this filter which talk about the material
14 within the filter being loosely uncompacted?
15 A. Yes, I have.
16 Q. And what is your understanding of the term

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"loose"?
A. Well, as applied to a filter, an air filter, particularly, it refers to the porosity of the filter. And air filters characteristically have porosities in the range of 90 percent or more, meaning that in the volume that the filter occupies, 90 or more percent will be air. And that is my interpretation of the words that you have cited.
Q. And what is your definition of the word "compacted"?

A. Less porosity.
Q. Is a filter which is loosely uncompacted more or less likely to release fibers than a filter that is tightly compacted?
A. The fibers that are of hygienic significance will not be more or less affected by the porosity of the filter unless you bring it out to an extreme degree which would mean you no longer had a structure which you would describe as a filter.
Q. Are you aware of any studies which have been done on the number of fibers which are released from filters of various compactness?
A. I am not aware of a study of that kind.
Q. Have you ever done any research regarding the number of fibers which are released from filters of varying compactness?
A. Well, I've done research on the effect of compactness on fibers, and since they included measurements of the amount of material released from the fiber -- from the filter as a general subject, the answer would be yes.
Q. What studies have you done regarding the release of fibers from filters of varying compactness?
A. Well, I think you're misquoting me there.
Q. Well, my question to you was have you done any research or studies regarding the release of fibers from

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filters of varying compactness.

A. And my answer was I have done studies on release of particles from fiber -- from filters at different compactnesses.

Q. What kinds of particles have you done studies on in terms of release of particles from filters of different compactness? You say you've done research regarding the release of particles. What kinds of particles are you talking about?

A. Of tobacco smoke, for one.

Q. What other kinds of particles?

A. Oh, particles that were generated from copper sulfate aerosols.

Q. What other kinds of particles?

A. I'm trying to think. Those are the two I recall.

Q. Have you ever done any research regarding the release of fibers from filter material itself in situations where we have filters of different compactness?

A. I have not done research specifically on fiber release from the filter, but of the total release from the filters which would include fibers if they were present.

But people in the filter research area do not ordinarily do research on fiber shedding, because they don't anticipate that filters by definition will shed their fibers.

Q. If they're adequately made, right?

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A. I'm sorry?

Q. If the filter is adequately made, correct? I mean the assumption you're making is that for a filter not to assume -- not to release or shed fibers, that filter has to be made adequately. Correct?

A. I make the assumption which I think is valid that if there's a commercial filter available, that it has proved itself to be a structure that does not disintegrate.

Q. Have you ever done any research of your own regarding fiber release of filters on the ends of

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cigarettes?
A. I have not.
Q. Have you ever written anything, either alone or in collaboration, regarding the release of fibers from filters on cigarettes?
A. I have not.
Q. Other than Dr. Longo's experiments, are you aware of any other studies which have discussed the release of fibers from filters on cigarettes?
A. Yes.
Q. What other studies are you aware of?
A. Oh, there was a paper published in the Cancer journal a year ago that talked about release of fibers from cigarettes.
Q. Is that the Pauley article?
A. Um-hmm. Yes.

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Q. And what opinions or conclusions from that article do you believe are significant with respect to the opinions you have in this case?
A. Well, my primary impression was they should stick to cancer.
Q. Who should?
A. The authors.
Q. And why do you say that?
A. Well, it was kind of a silly experiment.
Q. What was silly about it?
A. Well, they're talking about the release of airborne fibers, and they're proving it by putting an end of a filter cigarette against a piece of liver. And there's just no relationship.
Q. Between --
A. Between the release of fibers in an airborne state and having them stick to a piece of wet tissue.
Q. Such as the wet tissue that someone might have in their mouth?
A. If you get fibers released to your mouth under that circumstance, they are not going to get into your lungs.
Q. If fibers are released from the end of the filter onto a surface of wet tissue, does that not bespeak of the propensity of the filter to release fibers when air is

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25 sucked through the filter?

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1 A. It has no relationship.
2 Q. So the Pauley study is a published study on the
3 release of fibers from filters, correct?
4 A. Yes. That's the topic.
5 Q. All right. And Longo has published his study on
6 the release of fibers from cigarette filters, correct?
7 A. So I heard.
8 Q. Are you aware of any studies other than those two
9 published articles regarding fiber release from filters on
10 cigarettes?
11 A. No, I am not.
12 Q. Are you aware of any published studies whatsoever
13 regarding the fact that there is no -- strike that.

14 Are you aware of any published studies whatsoever
15 which have come to the conclusion that there is zero fiber
16 release from filters on cigarettes?
17 A. No.
18 Q. Are you aware of any surveys that have been done
19 or any other scientific techniques which have been performed
20 which have come to the conclusion that there is zero fiber
21 release from filters on cigarettes?
22 A. Since I've already stated I'm not aware of any
23 other studies, the answer to your question I think is
24 obvious.
25 Q. All right. Now, have you ever asked anybody from

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1 Lorillard if they could provide you with some representative
2 Kent Micronite cigarettes so you could perform a study of
3 your own?
4 A. I'm not aware that I have asked Lorillard, but I
5 certainly have inquired very carefully of the attorneys
6 representing them as to all the things that are available in
7 all respects. And the answer that I received was there are
8 no other cigarettes except for one package that was

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recovered from some store that had been on a card, and this, again, has no other history.

Q. The package which was recovered from a store, who told you about that?

A. My recollection is that the attorneys for Lorillard told me about it.

Q. And have they shown you that package?

A. No, they have not.

Q. Have you asked to see the package?

A. I have not.

Q. Did they offer to show you the package?

A. I don't recall.

Q. Do you know if the package was unopened when it was recovered?

A. The package, as I have been told, had a mounting bar through the package so that it was open to the atmosphere.

Q. All right. So the package of cigarettes which Dr. Slade has, that is a different pack of Kent Micronite cigarettes than the attorneys have told you exist? There are now two packs that we know of that are in existence? Correct?

A. I believe there were others also, but at least those two have the asbestos Micronite filter.

Q. Are you -- you said you believe there may be some others. Have you been told that there are other packs of Kent Micronite asbestos-containing filter cigarettes in existence as of this date?

A. I have been told that there are none that the attorneys are aware of.

Q. As to the pack of cigarettes that the attorneys told you about, do you believe that it might be useful to compare the cigarettes within that package to the cigarettes that Dr. Longo tested?

A. I think not. I've already testified this morning that I thought the cigarettes he tested had no relationship to the cigarettes as they existed in the 1950s, and for me to go ahead and do the same thing he did would be a contradiction in my scientific judgment.

Q. All right. You've told me that you

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believed that
24 the cigarettes which were utilized by Dr. Longo were not an
25 adequate sample. In other words, they were not

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1 representative, perhaps, of what the average Kent Micronite
2 asbestos-containing filter cigarette would have been like
3 back during '52 to '55, correct?
4 A. That's correct.
5 Q. And now we know at least that there is one other
6 pack of cigarettes in existence besides the pack that
7 Dr. Longo availed himself of, correct?
8 A. Also in -- not in good condition.
9 Q. And no attempt has been made by you or anyone else
10 to your knowledge to compare the cigarettes from those two
11 packs, correct?
12 A. In what way are you referring to?
13 Q. To compare them visually, microscopically or in
14 any other method?
15 MR. EVANS: That assumes that he could compare the
16 one cigarettes to the ones already tested? Is that what
17 you're asking?
18 MR. TIGERMAN: No. The cigarettes from the pack
19 from which Dr. Longo obtained the cigarettes which were
20 tested.
21 MR. TIGERMAN: Q. Sir, are you aware of any
22 attempts made by anybody to compare the cigarettes from the
23 package in Dr. Slade's possession to the package which you
24 were told about?
25 A. Compare in what way?

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1 Q. Visually, microscopically or through any other
2 technique.
3 MR. EVANS: Again, you're talking about cigarettes
4 that Slade has now that have not been smoked?
5 MR. TIGERMAN: Yes.
6 THE WITNESS: Are you talking about the cigarettes
7 that Longo still has? Or are you talking about cigarettes
8 that Slade has?

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MR. TIGERMAN: Q. The cigarettes that Longo has
were from a pack that came from Slade? Correct?
A. I understood that to be correct.
Q. Are you aware of any attempt to compare the
cigarettes from the package you were told about to the
cigarettes from the package that Dr. Slade or Dr. Longo had
possession of?
A. I can think of no reason for doing so.
Q. Are you aware of any such attempts?
A. I am not aware of any such attempt as far as I
personally am concerned.
Q. Now, the cigarettes which the attorneys told you
about, when were you told about this other pack of
cigarettes?
A. Oh, I would judge somewhere between two and three
years ago.
Q. And have you ever testified about this other pack

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of cigarettes before?
A. In what way, testified?
Q. Have you ever told anybody that there was another
pack of cigarettes, to your knowledge?
A. I was not aware that that was a matter of any
concealment. I thought it was something that everybody knew.
MR. BRAKE: Let's not get into too much into the
grounds of unfair inference. Go back and read the Frost
transcript where Phil Harley asked him about -- you're
speaking of the Hollingsworth & Vose pack, is that correct,
Doctor, that was found by my client?
THE WITNESS: I don't even know who found it.
MR. BRAKE: But you're aware there was one with
the wire through it?
THE WITNESS: The one that has the wire through
it on the card.
MR. BRAKE: You'll have to ask Phil Harley's
questions. I think we are going to hear the same answers.
I think you have to go back and ask him what Harley asked
him, because Harley did ask him and he testified.
MR. TIGERMAN: He was free to answer

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however he
22 wanted.
23 MR. BRAKE: Yes and no.
24 MR. TIGERMAN: Yes.
25 MR. BRAKE: Whether he has a per se
memory of what

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1 Phil Harley asked him --
2 MS. CHABER: He asked him whether or not
he ever
3 testified.
4 MR. BRAKE: You're trying to raise the
inference
5 he's hidden it.
6 MS. CHABER: You assume I've read every
transcript
7 that exists on this gentleman.
8 MR. BRAKE: No. I think you guys are
trying to
9 raise an unfair inference and he may not remember
what
10 Mr. Harley asked in asking him about it.
11 MR. TIGERMAN: You give us too much
credit.
12 Q. Sir, you discussed the fact that the
package from
13 which Dr. Longo obtained his cigarettes was
concave,
14 correct?
15 A. Yes.
16 Q. Do you know whether this other pack of
cigarettes
17 is concave?
18 MR. EVANS: Vague and ambiguous. What do
you mean
19 by other pack of cigarettes?
20 MR. TIGERMAN: There were only two packs.
Come
21 on.
22 MR. EVANS: You talk about packs that
Slade has,
23 Longo has?
24 MR. TIGERMAN: I did not. Don't obstruct
the
25 deposition.

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1 MR. EVANS: I'm not.
2 MR. BRAKE: Your questions are wrong.
3 MR. TIGERMAN: Q. Sir, how many packs of
4 cigarettes are you aware of in existence today that
contain
5 Kent Micronite asbestos-containing filter
cigarettes?
6 A. I know of two.
7 Q. All right. And as to those two packages
of
8 cigarettes, one of them that you have testified you

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have
9 seen photographs of and it looked concave, correct?
10 A. Yes.
11 Q. Do you know if the other pack is concave?
12 A. I do not.
13 Q. Now, you said that the pack that you have seen the
14 photograph of was not stored in an approved manner.

15 Correct?
16 A. I have said that. I've said I don't know that it
17 has been.
18 Q. What is the approved manner?
19 A. It would have to be stored at a cool temperature
20 and at a specified relative humidity.
21 Q. And from where do you obtain that specification?
22 A. From the tobacco people.
23 Q. Now, are you aware of whether or not any agency,
24 commission or other group has standards for rehydration of
25 cigarettes?

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1 A. Have --
2 Q. Does the FTC have a standard for rehydration of
3 cigarettes?
4 A. They have a standard that the cigarette -- I don't
5 believe they rehydrate the cigarettes, no.
6 Q. Are you aware of any group at all that has a
7 standard for hydration of cigarettes? Not rehydration. The
8 question is different now. Hydration.
9 A. I know that cigarettes have a moisture content
10 that is normal to that particular brand or type of
11 cigarette. Whether they are all the same, I don't know.
12 Q. Do filters have a standard moisture content?
13 A. I would be inclined to say that the current
14 filters do not.
15 Q. And by current filters, you mean filters from what
16 age? Today?
17 A. Yes.
18 Q. What about filters from the '50s? Do you know if
19 those filters had a standard rate or a standard -- whether
20 there was any water content in those filters?
21 A. To the degree that they had cellulose content, the
22 moisture content would rise and fall depending upon

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the
environment in which they were placed.
Q. Would a dehydration of the cellulose content make
a filter more likely to release mineral fibers?

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A. Are you talking about a specific filter now?
Q. Sure.
A. Or are you talking about general?
Q. Well, let's talk about the Kent Micronite filter
that contained asbestos. Did it have cellulose, as well?
A. Yes.
Q. All right. And if the cellulose became dehydrated, are you testifying that that would make it more
likely that the asbestos fibers would be released?
A. That is not my testimony.
Q. Do you believe that a dehydration of the cellulose
would make it more likely to have a release of asbestos
fibers in a Kent Micronite asbestos-containing cigarette?
MR. EVANS: I thought he just answered that.
MR. TIGERMAN: No, he hasn't.
MR. EVANS: He just answered that question.
MR. TIGERMAN: He say that was not his testimony.
Now I want to know what his opinion is.
MR. EVANS: Well, if he says it's not his testimony, it's not his opinion. He has no opinion one way
or the other.
MR. TIGERMAN: Don't tell him what his opinion is,
Counsel.
MR. EVANS: He just testified or answered the very
same question.

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MR. TIGERMAN: Q. Sir, do you have an opinion one
way or the other as to whether or not the dehydration of the
cellulose content in an asbestos-containing Micronite Kent
filter would make it more or less likely that the asbestos
fibers would be released during smoking?
A. I don't have an opinion on that. I don't believe
that it would have any influence on it.

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Q. All right. Do you believe that the dehydration of the tobacco would make it more or less likely that the asbestos content of the filter from a Kent Micronite asbestos-containing filtered cigarette would be released?

A. Let's be more precise now. When you talk about release, let me know whether you're talking about release by airborne methods or whether you mean release by the stuff falling out of the cigarette or whether you mean release by somebody putting their tongue against the end of the cigarette. Because I -- the answer might be different.

Q. All right. What is it between those things that could cause the answer to be different? What is it between those different types of release that could cause the answer to be different?

MR. EVANS: Are you asking her or --

MR. TIGERMAN: No. I'm talking to him.

MR. EVANS: Oh. I didn't know.

THE WITNESS: Different mechanisms of release.

MR. TIGERMAN: Q. And what is it about the different types of mechanisms that might cause different answers? For example, how -- well, let me ask you this: Do you have an opinion that tobacco which has been dehydrated and then rehydrated is any more or less likely to cause the release of asbestos fibers in a Kent Micronite cigarette?

A. Well, again, I ask you to define what you mean by release so I can answer your question correctly.

Q. Do you have any opinion as to whether or not dehydration and then subsequent rehydration of tobacco in a Kent Micronite cigarette is more or less likely to release fibers by inhalation?

A. In my opinion, it would have no effect.

Q. Do you have an opinion as to whether dehydration and subsequent rehydration of the tobacco in a Kent Micronite asbestos-containing filter cigarette is

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any more
17 or less likely to release asbestos fibers by contact with
18 the tongue?
19 A. No.
20 Q. Do you have an opinion as to whether a dehydrated
21 and then subsequently rehydrated cigarette is any more or
22 less likely to cause the release of asbestos fibers in any
23 other form other than inhalation or contact with the tongue?
24 A. My opinion is that the dehydration and rehydration
25 of the tobacco in a cigarette will have no influence on the

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1 release of airborne fibers from the filter as long as the
2 filter has not been mechanically degraded.
3 Q. And by mechanically degraded, you mean manipulated
4 with the fingers? Is that an example of mechanical
5 degradation?
6 A. No, I'm thinking of the fact that the pack might
7 be subjected to outside pressure or other manipulation that
8 might shred the filter and cause it to spill out and that
9 sort of thing.
10 Q. With respect to the pack that you've seen
11 photographs of, have you seen any evidence that the
12 cigarettes within that pack were shredded?
13 A. I have not.
14 Q. Have you seen any evidence that the filters on the
15 cigarettes within that pack were shredded?
16 A. I have no evidence of that.
17 Q. Do you have any evidence that it was somehow
18 manipulated so as to destroy the integrity of the
19 cigarettes?
20 A. I have no knowledge of that.
21 Q. All right. Do you have any suspicion that this
22 pack was run over by a truck or dropped and stepped on or
23 anything to that effect?
24 A. Well, as I testified earlier, we have no history
25 of the pack whatsoever, and that's one of the problems with

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1 the representativeness of the cigarettes relating to the

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early 1950s.
Q. All right. With respect to the other pack of cigarettes that the lawyer told you about, are you aware of any attempt by anybody to test the fiber release on the filters of any of those cigarettes?
A. I'm not aware of anyone attempting that, and my advice to the attorneys when that matter came up was that that was futile.
Q. So they asked you about whether or not the second pack should be tested?
A. I believe we discussed it and I gave them my opinion that that would not be a representative sample of the cigarettes at that time.
Q. Okay. Because it was an old pack, again, and it had a wire through it?
A. It was an open pack, it had no history, it had been dehydrating for Lord knows how many years, and now we didn't have a representative cigarette.
Q. So now we've talked about the fact that you're only aware of two packs of cigarettes being in existence, the one that Slade had and the one that the attorneys talked about, correct?
A. I'm not absolutely sure that Slade didn't have another pack. I'm uncertain about that.

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Q. All right. And is it your opinion that using any pack from the vintage era of 1952 to '55 would not be adequate for purposes of assessing fiber release?
A. If it were possible to get a pack that had been carefully preserved with regard to temperature, humidity and freedom from mechanical abuse, that certainly might be a consideration.
Q. You are aware of no such pack in existence, correct?
A. I am not aware of any such pack.
Q. And so therefore you are unaware of any cigarettes in existence which could be tested so as to in your mind

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satisfy your concerns that the cigarettes were representative as they existed during the vintage era, correct?

A. That's correct. Not only for the condition of the cigarettes, but also the problem of one package representing nine billion cigarettes in production. That is not a good statistical sample of that cigarette production.

Q. Sir, do you have any evidence from any source that the filters on Kent Micronite cigarettes between 1952 and 1955 varied in compactness, length, size or any other form?

A. I have no knowledge of that.

Q. Do you have any evidence that they were manufactured at more than one factory?

A. I do not know that information.

Q. Do you have any evidence that there was any variation of any sort between Kent Micronite asbestos-containing cigarettes?

A. I'm not sure I understand what you mean by any variation whatsoever.

Q. Sir, you rely or you have provided an article from JAMA, the Journal of the American Medical Association from 1953. Do you recall that article?

A. Yes.

Q. And sir, if we can just do a little Greek chorus here and look over each other's shoulders, isn't it true that Table 1 has Brand B-1 and Brand B-2 as filters which contained asbestos laminated with paper?

A. Yes.

Q. And both of those are presumably Kent Micronite cigarettes, correct?

A. That's my understanding.

Q. And one sample was obtained in April of 1952 and the other was in October of 1952. Correct?

A. Yes. That's what it says.

Q. And both of them have the same average weight of the filter tip, correct?

A. That's correct.

Q. Both of them have the same total length of the

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cigarette the same, correct?
A. Yes.
Q. Both of them have the same average length of the filter tip as the same, correct?
A. Yes.
Q. Both have the same circumference, correct?
A. Yes.
Q. Are you aware of any published literature or any data anywhere that there is any variation between the filters on Kent Micronite asbestos-containing cigarettes?
A. Well, let me tell you that when people do tests on cigarettes, it's customary to weigh them, measure them and measure the resistance of air through the cigarette. And cigarettes that are outside the normal range are discarded for purposes of tests. So the fact that these are very much alike only suggests to me that this was the criterion on which the cigarettes were selected for test.
Q. Lorillard -- have you seen any advertisements for the Kent Micronite filter cigarettes?
A. Yes.
Q. And have you seen any of the claims that were made regarding the ability of those filters to filter out tar or nicotine?
A. Well, I'm aware of the patents, of course.
Q. And, sir, if there were variation between the

filters and their abilities to filter out certain types of agents such as tar and nicotine, do you believe that Lorillard would have advised consumers of that fact?
MR. EVANS: It calls for speculation.
MR. TIGERMAN: Q. You can answer.
A. Advised who?
Q. Have you seen anywhere in any kind of medium, print, radio or Cinescope, any claim by Lorillard that the filters that were on the Kent Micronite asbestos-containing filter cigarettes varied in their ability to filter out tar

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and nicotine?
MS. ROENISCH: That's a different question. Are you asking a different question?
MR. TIGERMAN: Yes, it is.
THE WITNESS: I have seen nothing of that nature.
MR. EVANS: Let's take a five-minute break now. We've been going about an hour.
(Brief recess in proceedings - 10:00 to 10:11 am)
MR. TIGERMAN: Q. Sir, we're back on the record.
Of any of the materials that you have reviewed with respect to your opinions regarding fiber release of Kent Micronite filters, have any of those materials discussed infrared analysis of particulate matter?
A. There was one study commissioned by the tobacco company in 1951, if I recall correctly the date, that used

infrared methods for determining the release of mineral material from the cigarettes.
Q. Was that the study that was done that Dr. Kendall participated in?
A. That's the one I'm referring to.
Q. And are you aware of any source whatsoever that discusses whether -- strike that.
Is infrared, is that a spectroanalysis, or a spectrometry?
A. Yes. Spectro -- spectroscopic method, yes.
Q. Right. Is spectroscopic analysis by infrared an adequate technique for analyzing the presence or absence of asbestos fibers?
A. I'm not aware of it being a standard method.
Q. Are you aware of it being an approved method by anybody?
MR. EVANS: And we're talking about now versus --
MR. TIGERMAN: Ever.
MR. EVANS: -- 1951.
MR. TIGERMAN: Ever.
THE WITNESS: It's a standard method for many things. I'm not aware of it being a standard method for the detection or quantification of asbestos.

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MR. TIGERMAN: Q. Do you know what asbestos fibers would look like under infrared spectrometry?

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A. I have never investigated that.
Q. Have you ever done infrared spectrometry?
A. Yes.
Q. Have you ever done infrared spectrometry to analyze the presence or absence of asbestos fibers?
A. No.
Q. Have you had a student who suggested to you that they wanted to analyze the presence or absence of asbestos fibers, would you suggest to them that they do an infrared analysis?
A. Well, I think if I had a student I would ask the student to do some research and come up with what appeared to be the best methods for the particular material that was to be analyzed.
Q. Have you ever recommended to anybody that they use an infrared spectrum analysis to analyze the presence or absence of asbestos fibers?
A. I have not.
Q. Are you aware of anybody who has ever made such a recommendation?
A. Well, obviously, Mr. Kendall did.
Q. Do you know for a fact that Kendall's -- one of his assigned tasks was to analyze the presence or absence of asbestos fiber release from the filters?
A. I only have the report that is in the record.

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Q. Does it say anywhere in there the word "asbestos"?
A. I can't recall. If you would like me to reread it, I will.
Q. Sir, do you know whether or not anybody ever assigned to Dr. Kendall the task of analyzing the release of asbestos fibers from Kent Micronite cigarettes?
A. I do not know. I only know what is in that one document.
Q. When he talks about silica and silicates,

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first of
all, isn't it true that the Old Gold and Kent cigarettes
both had silica added to them?
A. That's beyond my knowledge.
Q. Where would the silica have come from in an Old
Gold cigarette?
MR. EVANS: Objection. Calls for speculation. To
the extent that you know.
MS. ROENISCH: He's already testified it's beyond
his knowledge.
MR. TIGERMAN: Q. Sir, with respect to the
Dr. Kendall study and the discussion of silica release from
Old Gold cigarettes, is it your understanding that those
cigarettes were non-filtered?
A. I don't recall whether he said they were filtered
or non-filtered.

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Q. All right. Do you know one way or the other
whether or not silica was added to the material in the
cigarette? Not in the filter, but in the cigarette itself?
A. I'm not aware that silica is added to tobacco used
in cigarettes.
Q. Was there silica release from both the Old Gold
and Kent cigarettes in the Kendall study?
A. That's my understanding.
Q. Where did the silica come from?
MR. EVANS: Objection. Calls for speculation.
MS. CHABER: You can answer.
MR. EVANS: Q. You can answer to the extent that
you have any idea.
THE WITNESS: Well, tobacco, of course, is a
field-grown leaf. And in the growing period, some of the
soil gets onto the leaf. And in the manufacturing process,
the leaf is cleaned, but not all of the silica necessarily
gets removed from the leaf. So it's my assumption, based on
this knowledge that I've just spoken of, that there would be
some residual sand in the tobacco.
MR. TIGERMAN: Q. Is asbestos a form of silica?

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22 A. Asbestos has silica as part of the molecule --
23 pardon me, does not have silica as part of the molecule, but
24 silicon. Silica has silicon. Silicates have silicon.
25 Q. Is asbestos either a form of silicate or silica?

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1 A. Asbestos is a silicate.
2 Q. Now, Dr. Kendall, you believe, confused the
3 terminology regarding silica and silicates, correct?
4 A. That was my impression, yes.
5 Q. And you believe that Dr. Kendall's study was a
6 botched study?
7 A. No. I don't think it was botched. I think that
8 he had an idea that he tried out and got some data.
9 Q. Was it a failed study?
10 A. It didn't -- it wasn't sensitive enough to show
11 the presence or absence of asbestos in my opinion.
12 Q. Was it a flawed study?
13 A. I wouldn't characterize it as flawed.
14 Q. One of the Kendall documents which you've provided
15 and which is marked as Plaintiff's Exhibit 4 is a letter
16 dated January 28, 1954. You've seen that before, correct?
17 A. Yes.
18 Q. And on page 2 of that document under paragraph 5,
19 it says: Comparisons of the Old Gold and Kent spectra show
20 there are some chemical differences between the two.
21 Do you know what he meant by that?
22 A. No, I do not.
23 Q. It goes on to say: It was not believed wise to
24 attempt to assess these yet.
25 Do you know what he meant by that?

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1 A. I do not.
2 Q. Do you know whether or not he might have been
3 referring to the asbestos content?
4 A. I have no idea.
5 Q. Now, with respect to the method for assessing the
6 existence or non-existence of asbestos fiber release from
7 the Kent Micronite asbestos-containing filter, you

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have said
that Dr. Longo did not follow the EPA standard protocol.
Correct?
A. Yes.
Q. Are you aware of the fact that there is an ASTM
Standard for assessing the presence or absence of asbestos
fibers, period?
A. What do those initials stand For.
Q. American Society for Testing Materials?
A. I'm not familiar with that test.
Q. Are you aware of an organization called the ASTM?
A. Yes.
Q. And what do you believe it to stand for?
A. American Society for Testing and Materials.
Q. All right. And are you aware that that
organization has a procedure or protocol which it has
approved for the analysis of the existence or non-existence
of asbestos fibers?
A. I'm not familiar with that standard.

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Q. Are you aware of the fact that Dr. Longo actually
authored that standard?
A. I don't have any information of that kind.
Q. Do you believe that the EPA standard which would
call for collecting materials upon the surface of a filter
would be adequate to assess the release of fibers, asbestos
fibers, from a cigarette containing tar and nicotine?
A. Are you asking me if that were possible?
Q. Do you believe that the EPA standard is adequate
to assess the release of asbestos fibers from a cigarette
filter when that cigarette itself contains tar and nicotine
which would be deposited upon the face of the filter in the
machine in which the cigarette is placed?
A. Are you referring to the protocol rather than the
standard?
Q. The protocol, yes.
A. No, the protocol would not be adequate.
Q. And why would the protocol not be adequate?
A. Because the protocol calls for air sampling
without the presence of tar.

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21 Q. And what effect could tar have on the air sampling?
22 A. Presumably, the tar in cigarette smoke would tend
23 to obscure the presence of fibers.
24 Q. So if the EPA protocol would not be adequate under
25 those circumstances, what protocol would be adequate?

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1 A. I think the protocol that Dr. Longo used was
2 responsive to the presence of these materials.
3 My comment refers to the fact that he insists that
4 he used the EPA protocol, which he did not.
5 Q. When you say that you think that the protocol that
6 Dr. Longo used was responsive to the presence of these
7 materials, what do you mean by that?
8 A. I mean that he used a protocol that was intended
9 to clear the sample of tar so that he would have left the
10 fibers that he was interested in searching for.
11 The protocol, however, had other effects than
12 merely removing the tar from the sample.
13 Q. What other affects did the protocol have besides
14 removing the tar from the sample?
15 A. Number one, it had potential for contamination.
16 Number two, it was effective in breaking up clumps
17 into individual fibers or very small aggregates of fibers.
18 Q. And what do you believe posed the potential for
19 contamination?
20 A. Because it goes through various steps of being
21 brought up into a liquid and being sonicated, then being
22 filtered, then being dried. Each of these steps has a
23 potential for contamination.
24 Q. Do you have any evidence that there was actual
25 contamination?

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1 A. I have no evidence that there was actual
2 contamination. I have no evidence that there wasn't actual
3 contamination.
4 Q. You have no evidence one way or the other

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with
respect to contamination. Is that correct?
A. What I have stated is that the potential for
contamination increases as the number of steps in the
procedure increases.
Q. All right. Please give me -- why don't you give
us some constructive comments as to how Dr. Longo could have
reduced this potential for contamination.
MR. EVANS: I'll object as vague and ambiguous.
MR. TIGERMAN: Q. If you were doing the
experiment, how would you have reduced the potential for
contamination?
A. Well, I think I've explained already that I
wouldn't be doing that experiment with those cigarettes.
Q. Well, if you were talking to somebody, say --
well, Dr. Longo had been your student at one point, correct?
A. Not to my knowledge.
Q. Let's just assume that Dr. Longo were your student
and he was proposing to do this test. Before he had
actually performed the test and described the protocol by
which he was going to abide, would you have discussed with
him the potential for contamination?

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A. I would have discussed that with any student who
is intending to do a complicated procedure.
Q. And how would you have suggested to Dr. Longo that
he reduce the potential for contamination?
A. I can't tell you that offhand. I would have to
study the procedure and look into the facilities that are
available and so on.
Q. Okay. Currently you have no proposal as to a
technique by which Dr. Longo could have reduced the
potential for contamination?
A. I have not studied that.
Q. Are you familiar with certification by AHERA,
A-H-E-R-A, regarding laboratories that do asbestos
determination?
A. Yes.
Q. And do you know whether Dr. Longo's laboratory had

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been certified by that organization?
A. It's my understanding that it has been.
Q. Have you ever done any work for a laboratory that has been certified by AHERA?
A. I have not.
Q. What's the purpose of that certification?
A. It's to make certain that the laboratory is able to analyze samples within some variation to the true number.
Q. Do you know how many inspections AHERA does in

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order to issue their certification?
A. Well, it's my understanding that they must do periodic samples of known materials and that they are inspected by an individual designated by the agency.
Q. And do they do blind studies?
A. Yes.
Q. Do you know of any instances where Dr. Longo's laboratory has failed in any of those certification attempts?
A. I have no knowledge of the history of their certification.
Q. Do you know of any instances when the blind study has revealed the existence of contamination?
A. I have no knowledge of this.
Q. Now, the method by which an individual will smoke a cigarette can vary from person to person. Correct?
A. Yes.
Q. From person to person, the rapidity of the puff can vary, correct?
A. Within limits, of course.
Q. The time of the puff can vary, correct?
A. Within certain limits.
Q. The volume of the puff can vary. Correct?
A. Within fairly narrow limits, yes.
Q. The number of puffs on a cigarette can vary from person to person?

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A. Somewhat. Not very much.
Q. The duration of the smoking of a cigarette can vary between people, correct?
A. If you're talking about the interval

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between
puffs, again, it varies within fairly narrow limits.
Q. The length of the butt which is put out at the
cessation of the smoking of the cigarette can vary from
person to person. Correct?
A. Yes.
Q. Do you have any information regarding Milton
Horowitz and the average velocity or rapidity of the puff
that he took on Kent Micronite cigarettes?
A. I have no idea.
Q. Do you have any information regarding the average
rapidity of puff for a smoker?
A. Well, the average is subsumed in the standard
smoking cycle, that is intended to be an average of all
smokers.
Q. Is it? 35 milliliters?
A. Yes.
Q. Isn't it true that the size of the puff used on a
standard cigarette smoking machine is not the average of the
observation of puffs viewed among individuals? It's not an
average, is it?
A. It's my understanding that it represents an

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average of smokers, yes.
Q. Smokers will typically have a standard or a puff
of anywhere from 27 to 61 milliliters, correct?
MR. EVANS: If you're reading from the article,
maybe you ought to let him see it.
MR. TIGERMAN: I want to know what his opinion is.
Q. Do you have an opinion?
MR. EVANS: As to what?
MR. TIGERMAN: Q. As to the standard volume of a
puff?
A. Well, obviously, the standard volume of a puff is
one number, but if you're saying that that -- that they can
vary between 30 and 60 ml., I certainly would not quarrel
with that.
Q. All right. This JAMA 1953 article which you've
already indicated that you reviewed states that the size of

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17 the puff on a cigarette smoking machine which is 35
18 milliliters is reasonable in view of Pfyl's,
P-F-Y-L,
19 apostrophe S, observation that puffs varied among
20 individuals from 27 to 61 milliliters. Correct?
21 A. That's what it says.
22 Q. Do you know how many people puffed at 61
23 milliliters versus how many people puffed at 27
milliliters?
24 A. I have not -- I do not have those
numbers.
25 Q. Are you aware of any studies which have
attempted

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1 to determine the percentage of people that puff at
the high
2 end of the range versus people that puff at the low
end of
3 the range?
4 A. I'm not aware of any.
5 Q. Do you know whether or not the 35
milliliters is
6 actually the average, or whether or not it's just
considered
7 reasonable because it's within the range?
8 A. My opinion would be that it has been
considered by
9 a panel of people who were trying to standardize
the smoking
10 cycle for research purposes, and in fact I know
that quite
11 well because I attended several of those meetings.
12 Q. All right.
13 A. Not in 1951, but at a later time.
14 Q. This gentleman, Pfyl, P-F-Y-L, have you
read any
15 of the literature --
16 A. No, I have not.
17 MR. EVANS: This is the '53 article
you're reading
18 from?
19 MR. TIGERMAN: Yes.
20 Q. Have you read any literature from anyone
that
21 attempts to quantify the percentage of people that
will puff
22 at 27 milliliters versus people that puff at 35
milliliters
23 versus people that puff at 45 versus 61
milliliters?
24 A. I think I've answered that already.
25 Q. And the answer is you're not aware of any
such

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1 literature?
2 A. That's correct.
3 Q. When did you attend these meetings

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regarding the
standardization of puffs?
A. In the early 1970s.
Q. And where was that?
A. We met at various places.
Q. And who did you meet with?
A. Other people who were interested in doing research
on the health effects of cigarettes.
Q. Give me some names.
A. Dr. Longo's friend from the -- what's the name of
that? American -- I can't recall his name, it begins with a
B-R, Broom something. He was involved in it.
There were others. I can't recall the names at
this point.
Q. Were any new standards issued as a result of these
meetings?
A. Yes. It was agreed on the 35 ml. two seconds,
once per minute, as being the cycle, smoking cycle that
would be used for research purposes.
Q. Wasn't that exactly the same cycle that had been
used approximately 20 years before in the JAMA article in
1953?
A. Yes.

Q. So that was not a new standard, was it?
A. Well, it was a new standard for animal
experimentation for effects of smoking physiologically.
Q. Now, do you believe that the 1953 JAMA article
which was discussing the effectiveness of filters in taking
out tar and nicotine would have discussed dangers of
asbestos fiber release if any fiber release had been studied
and found?
MR. EVANS: Objection. Vague and ambiguous.
MR. TIGERMAN: Q. Do you believe that the JAMA
1953 article actually studied and looked for asbestos fiber
release?
A. I do not know.
Q. Do you believe that it would have commented on the
dangers of asbestos --
MR. EVANS: Objection. Calls for speculation.
MR. TIGERMAN: Q. Do you believe there's

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any
18 significance to the fact that that article does not comment
19 on the dangers of asbestos?
20 A. I do not know.
21 Q. Are you aware of the fact that in 1944 the Journal
22 of the American Medical Association published an editorial
23 on environmental cancers which discussed asbestos?
24 A. I'm aware of that, yes.
25 Q. Are you aware that in 1949 the Journal of the

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1 American Medical Association published an article on the
2 relationship between asbestos and cancer?
3 A. I'm not familiar with that particular article.
4 MR. BRAKE: It's not quite accurate.
5 MR. EVANS: Yes.
6 MR. BRAKE: But we'll -- go ahead.
7 MR. TIGERMAN: Q. Are you aware of any article in
8 1949 published in the Journal of the American Medical
9 Association regarding the association or relationship
10 between asbestos or asbestosis and lung cancer?
11 A. Well, the Journal of the American Medical
12 Association was not my usual reading material.
13 Q. The Journal of the American Medical Association,
14 do you know whether or not in 1949 that was the most widely
15 distributed and read medical journal amongst medical doctors?
16 A. In the United States?
17 Q. Yes.
18 A. I don't know.
19 Q. Sir, do you believe that there is a background
20 level of crocidolite in the air in the United States?
21 A. Yes.
22 Q. And from what do you derive that opinion?
23 A. From my own measurements and from reading in the
24 literature of others who have made them.
25 Q. First of all, tell me what literature you have

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1 read wherein individuals have made measurements regarding
2 background levels of crocidolite?
3 A. Well, let's define what you mean by background

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levels. Maybe that will help.
Q. Well, what's your understanding of the term
"background level"?
A. The amount of fibers that one would find in the
environmental air in cities and in non-urban areas.
Q. And what is the background level for crocidolite?
A. Well, I'm not sure that anyone has differentiated
crocidolite from chrysotile or other forms of asbestos.
Q. Are you aware of any articles, any studies or any
surveys published by anyone regarding the background level
of specifically crocidolite in the United States?
A. I'm not familiar with a study that concentrated on
crocidolite.
Q. Have you done any attempts to quantify the level
of crocidolite specifically?
A. I have not. I have included it in all fibers.
Q. And did you observe any crocidolite in any of the
samples that you have done of background levels?
A. Well, I believe I just answered your question to
that.
Q. Which is you did not find -- you did not observe
anything that you specifically sorted out or took out as

crocidolite specifically?
A. In the air samples, yes.
Q. Okay. If you were to give me what you believed
was the background level for crocidolite alone in the United
States, could you give me a quantitative figure?
A. I have no measurements that would define that.
Q. Chrysotile is a mineral which naturally occurs in
the North American continent. Is that true?
A. Certainly in parts.
Q. It is mined in parts of the North American
continent. Isn't that true?
A. It is my understanding.
Q. Crocidolite, on the other hand, is not mined in
the North American continent. Is that true?
A. It's my understanding.
Q. It does not naturally occur in the North American

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continent. Isn't that true?
A. Oh, I wouldn't say it's completely absent.
There's a difference between there being -- the mineral being present and being present in concentrations that are minable.
Q. Give me the name of a single region or a single mine where there is crocidolite present in North America.
A. Well, crocidolite is a normal mineral in many areas along with other types.

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Q. Where?
A. North America.
Q. Where in North America?
A. I can't define it precisely, but I would be quite confident I could find it in granite.
Q. Are there chrysotile mines in Vermont?
A. No.
Q. Are there chrysotile mines in Canada?
A. Well, yes.
Q. Yes on both? Or yes on Canada?
A. Yes on Canada. I'm not sure whether they ever mined chrysotile in Vermont. They may have, but they're not doing it at the present time, as far as I know.
Q. Have there ever been chrysotile mines in California?
A. I'm not aware of it.
Q. Can you give me the name of a single mine in North America that has ever mined crocidolite?
A. I'm not aware of any that have done that.
Q. Of the asbestos products that have been used on the North American continent, what percentage of those products contained crocidolite versus products that contained chrysotile and amosite?
A. Oh, it's hard for me to give you a precise number, but I would estimate that crocidolite might be 5 percent and

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chrysotile 95 percent, something of that order.
Q. And where does that leave amosite?
A. I don't know.
Q. Sir, do you know whether or not there even is a background level for crocidolite in the United States?

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A. I do not know that this information is available.
Q. All right. And do you know whether or not crocidolite is considered by industrial hygienists to be a more potent carcinogen than other forms of asbestos?
MR. BRAKE: Objection to the form.
MR. TIGERMAN: Q. Go ahead.
MR. EVANS: It calls for speculation. Are you talking about any industrial hygienist? Are you talking about all industrial hygienists?
MR. TIGERMAN: Q. Do you have an opinion whether crocidolite is a more potent carcinogen than other forms of asbestos?
A. Well, it was believed at one time, but now that the standards of asbestos for all types are the same, the implication is that they are all equally potent.
Q. Can chrysotile cause mesothelioma?
MR. EVANS: Objection. That goes beyond the scope of his designation.
MR. TIGERMAN: Q. Do you believe that chrysotile can cause mesothelioma?

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A. That's not my area of expertise.
Q. So you have no opinion as to whether or not chrysotile is capable of causing mesothelioma? Is that correct?
A. I only know what I've read in the literature.
Q. And have you read anything in the literature regarding whether chrysotile is or is not capable of proceeding mesothelioma?
MR. EVANS: Again, this goes Beyond the scope of his expert designation. He's not here as an expert on causation.
MS. CHABER: This isn't a causation question.
MR. EVANS: It's not a relevant question, either, Counsel.
MS. CHABER: Yes, it is.
MR. TIGERMAN: Q. Go ahead.
A. Yes, I've read an article that indicates the

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belief that chrysotile will not cause lung cancer.
Q. And have you ever read any articles that voiced the opinion or expressed the opinion that chrysotile is capable of causing mesothelioma?
A. I've read articles to the effect that it's capable of causing lung cancer.
Q. What about mesothelioma?
A. I don't recall that specifically.

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Q. Are you aware of any scientists or experts who have ever voiced the opinion or expressed the opinion either verbally or in writing that crocidolite is a more potent carcinogen than chrysotile when it comes to mesothelioma?
A. I have read articles of that kind, yes.
Q. Have you ever testified for an asbestos manufacturer or distributor?
A. No.
Q. Have you ever been consulted by an asbestos product manufacturer with respect to the issue of the existence of airborne fibers caused by their products?
A. Yes.
Q. And is that the caulking that we were talking about that was used for trailer homes? You said that you did some work at a caulking factory.
A. Well, no -- yes. That's correct. That's one. One, yes.
Q. Any others?
A. Well, I've done surveys as a consultant for companies that had asbestos products to determine the exposure of their workers.
Q. What companies?
A. I can't -- it's so long ago, I can't recall.
Q. How many times?
A. Oh, probably half a dozen.

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Q. Where were the factories?
A. In Pennsylvania, in New Jersey.
Q. In Berlin, New Jersey?
A. Unh-uh. No.
MS. CHABER: Manville?
MR. TIGERMAN: Q. Johns-Manville? Was

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that one
of the companies?
A. I have consulted for them, but not on their
asbestos problems.
Q. Have you ever consulted for Owens Corning Fiberglas?
A. No.
Q. Have you ever consulted for any company whose name
you can recall that was a manufacturer or distributor of
asbestos-containing products?
A. I can't recall the names at the present time.
Q. Did you publish any of the studies that you
performed?
A. No.
Q. Do you have any of the notes of the studies you
performed
MR. BRAKE: He called them surveys. I think
that's a different thing. Why don't you ask him what a
survey is.
MR. TIGERMAN: Q. What's a survey versus a study?

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A. Well, it's going into the factory and taking air
samples at the various production operations and measuring
the amount of asbestos in the air.
Q. Did you ever do any surveys for Pittsburgh
Corning?
A. No.
Q. For Nicolette?
A. No.
MS. ROENISCH: Counsel, do you have an estimate on
the amount of time? Because we need to leave at 11:15 at
the latest for trial testimony. And to the extent you're
asking company-by-company questions, perhaps you should move
on to other opinions.
MR. TIGERMAN: Q. Have you ever been in court or
deposition to give testimony at the request of attorneys
working for an asbestos product manufacturer other than
Hollingsworth & Vose or Lorillard, to the extent that those
filters contained asbestos?
A. No.

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Q. Can you give me an estimate of the total amount of monies you've received in connection with the work you've performed and the testimony you've given regarding Kent Micronite cigarettes and their filters?
A. You mean for the entire time I've been involved in this litigation -- in litigation concerning that?

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Q. Yes.
A. Oh, maybe $40,000.
Q. Now, the amount that you charge per hour is how much?
A. $125 per hour.
Q. Do you charge that for the time you spend on the airplane traveling?
A. Yes.
Q. And how many hours did you travel out here for the second time?
A. I traveled four and a half hours.
Q. And so presumably you will have four and a half hours back? Is that correct?
A. No. That's incorrect. But --
Q. You get air currents?
A. Hmm?
Q. It will be shorter or longer?
MS. CHABER: He came from other places.
MR. TIGERMAN: Q. Oh, you came from another place?
A. Yes. And I'm going to another place.
MS. CHABER: So they're getting a bargain.
THE WITNESS: Well, I wasn't going to tell.
MR. BRAKE: Watch it. That was a joke. Jokes don't always come over on the record.

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MR. TIGERMAN: Q. All right. Now, where are you going to after this?
A. I'm going to Columbus, Ohio.
Q. Are you going there to do any --
MS. CHABER: He's going to see family. It's personal.
MR. EVANS: Let's not get into that.
MR. TIGERMAN: That's fine.
Q. And do you have a daily rate that you charge for

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your testimony?
A. Yes.
Q. And what's the daily rate?
A. Eight hours.
Q. Do you have a half-day rate?
A. Yes.
Q. And what's that?
A. Four hours.
Q. So it's just a straight multiplication?
A. Yes.
Q. Other than the chart that's used to illustrate the historical threshold limit values that you produced at your last session, have you or counsel prepared any charts to illustrate any of your other testimony?
A. I have not personally.
Q. Have you seen any other charts that counsel

intends to use in connection with your testimony?
A. I have not.
Q. Have you discussed the existence of any other charts?
A. The mere fact that they haven't acquainted me with them leads me to believe there are none.
MS. CHABER: Have you been asked to prepare charts while you were in court?
THE WITNESS: Not for this trial.
MS. CHABER: Have you done so in the past?
THE WITNESS: Yes.
MS. CHABER: And what kind of charts did you prepare?
THE WITNESS: I've prepared charts explaining the mechanisms for filtration of fine particles by fibrous filters.
MR. TIGERMAN: Q. All right. And --
MS. CHABER: Anything else?
THE WITNESS: That's -- that's all as I can recall.
MR. TIGERMAN: Q. And in what cases have you done that? Did you do that recently in the case in which you testified against Mr. Harley?
A. No. I know I did that for the Errati case (phonetic).
Q. And where was that case?

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A. In Philadelphia.
Q. And do you have any notes or any other materials in your possession which you use as background material or information which you utilized for the making of that chart?
A. There's nothing unique about the chart. It's the same sort of information I would use in the classroom in teaching students filtration mechanisms and which I do in fact use.
Q. Did you bring any additional materials with you in connection with this case outside of those materials which we've already copied?
A. No.
Q. With respect to the threshold limit values for asbestos, do you believe that the fact that the threshold limit value for chrysotile is the same as the threshold limit value for crocidolite means that both are equally as carcinogenic when it comes to the causation of mesothelioma?
A. I'm not exactly sure why they're making that change. It could be for any number of reasons. It could be toxicologic; it could be for simplicity in evaluating environments.
Q. Have you spoken with any of the other witnesses in this case?
A. I spoke -- no, I have not.
Q. Have you spoken with Dr. Gibbs?

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A. I do not know Dr. Gibbs.
Q. Have you spoken with Dr. Pooley?
A. I do not know him.
MR. EVANS: I believe counsel, he's testified he hasn't spoken with any other witnesses in this case.
MR. TIGERMAN: Well, he may or may not know who the witnesses are.
Q. Have you consulted with any other -- with any other people with regard to your testimony and your opinions in this case?
A. Other than the attorneys?

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Q. Yes.
A. No.
Q. Are you familiar with an article or an editorial published by Garrett Schepers regarding historical threshold limit values?
A. Where was it published?
Q. The Journal of Occupational Medicine, I think.
A. I don't recall reading that.
Q. Do you know who Dr. Garrett Schepers was?
A. No.
Q. Do you know the names of any of the former directors of the Saranac Laboratories?
A. Back in the 1930s.
Q. Was the Saranac Laboratory a well-respected group

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that analyzed occupational dust?
A. Yes.
Q. Were they the most respected group that studied occupational dust during that time period?
A. Well, I think I would say they were a respected group. Whether they were the most or the second I couldn't judge.
Q. Did you ever attend any of the Selikoff conferences?
A. I'm not sure which conferences you're referring to.
Q. Did you ever attend any seminars or conferences by the Academy of the -- the New York Academy of Sciences regarding asbestos?
A. If you're referring to the one that they published the monograph on, the answer is no.
Q. Have you ever spoken with anybody who attended the 1964 New York Academy of Sciences conference?
A. I'm sure I must have, but I don't know with whom.
Q. Have you reviewed the monograph to which you referred?
A. Yes.
Q. And when did you do that?
A. Oh, some years ago.
Q. And at whose request? Anyone's or just on your own?

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A. No.
Q. Just --
A. Just my own information.
Q. And what caused you to review it at that time?
A. Because it was a matter of concern in the occupational health, industrial hygiene profession.
Q. Are you familiar with the existence of an individual by the name of Dr. Heuper, H-U-E-P-E-R?
A. You're talking about Huber or Heuper?
Q. Heuper, H-E-U-P, as it --
A. Oh, yes. I know who he is, but I don't know him personally.
Q. Have you ever spoken with him regarding --
MS. CHABER: Not recently, I hope, because he's not alive any more.
MR. TIGERMAN: Q. Have you ever spoken with him at any time in your life?
A. I might. But I don't recall.
Q. Have you ever spoken with anybody who attended the 1964 Selikoff or New York Academy conference?
A. Well, if I had a copy of the monograph I could tell you the people I know. But I can't recall it without that help.
Q. Have you ever spoken with anybody who you believe was an attendee at that conference?

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A. Well, I think that I got a copy of it from Dr. Mary Amdur who happened to have two copies.
Q. Have you ever known an individual by the name of Lynn Schall?
A. Yes. I know the name and I -- but I don't know the -- I don't know --
MS. CHABER: New Jersey?
THE WITNESS: I know who you mean -- but I'm not personally acquainted.
MR. TIGERMAN: Q. Do you know whether or not Lynn Schall is an industrial or was an industrial hygienist?
A. That's -- my recollection is that he was, yes.
Q. Do you know whether or not Lynn Schall was in attendance at the 1964 New York Academy --
A. I have no recollection of that.
Q. Have you ever read anywhere any of the remarks

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17 that Mr. Schall made at that conference?
18 A. I can't recall at this point.
19 Q. But you have reviewed the monograph from that
20 conference? Correct?
21 A. I have read many parts of it, yes.
22 Q. Are you aware that there is a large volume of
23 materials containing the remarks of all the speakers from
24 that conference?
25 A. Well, my recollection is that they followed the

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1 articles that were presented.
2 MS. CHABER: The articles appear on a section and
3 then there's remarks on that section? Is that your
4 recollection?
5 THE WITNESS: That's my recollection, yes.
6 MR. TIGERMAN: Q. Have you reviewed that?
7 A. Well, again, I have to say it's been some time
8 since I reviewed that material.
9 Q. Sir, the patent for the Kent Micronite filter, how
10 many different patents or patent -- strike that.
11 Have you ever reviewed the patent application?
12 A. Rather than the patent issue?
13 Q. Yes.
14 A. No, I have not.
15 Q. Have you ever spoken --
16 MR. BRAKE: That confuses me to death. I don't
17 want to interrupt you, but the application versus the patent
18 is real confusing, I think, given the dates.
19 MS. CHABER: Why? There were patent applications
20 filed by the people who were seeking patents, and they file
21 applications and they file information with respect to the
22 application for the patent. I don't know what's confusing.
23 MR. BRAKE: Because I don't know --
24 MS. CHABER: Do you have any patents, sir?
25 THE WITNESS: Yes.

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1 MS. CHABER: And you know that the process of
2 getting a patent is that you file applications?
3 THE WITNESS: That's my understanding,

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yes.
MS. CHABER: That's what you've done in the past?
THE WITNESS: Yes.
MR. EVANS: Excuse me. Can we have just one person ask questions?
MS. CHABER: Why would we break the policy that's been going on already? I've only been one person all along. One day I had help and I wanted to make this a little bit faster and I'm responding to your question.
MR. BRAKE: Before you get insulting about it, I am just saying I think you'll find that the thing with all the texts that everybody calls the patent is the application here. That's all I'm saying. It's just a little confusing. I understand he says he hasn't reviewed it. I think I'm right. Right?
Let the record reflect that you haven't shown the Doctor either the patent or the application.
MR. TIGERMAN: That's fine.
MS. CHABER: But Doctor, you've been shown the patent in the past, have you not, by the attorneys?
THE WITNESS: Well, I have two that I have submitted as documents that I have. And I think you have those.

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MR. BRAKE: Yes.
MR. TIGERMAN: Q. All right. And have you ever requested the patent application?
A. I have not.
Q. Have you ever been offered the application?
A. I -- if you mean something different than the issue, the issued patent is all I have seen.
Q. Now, sir, you were also aware of some test -- you also reviewed the testing that was done by the Owens Corning Fiberglas Corporation in 1953? Is that correct?
A. Please refresh my memory on that.
Q. There's a document that is issued on Owens Corning Fiberglas letterhead dated June 4, 1953 regarding particles from Fiberglas cigarette filter plugs.
A. I have not seen that.

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Q. Are you aware of any study whatsoever that was done on filters, and in particular, both asbestos and Fiberglas filters where the filters were tapped onto a slide?
A. I'm not familiar with that.
Q. I believe you indicated at your last session of your deposition that there were some findings that you believed represented contamination. Strike that.
Let me ask you this: Sir, I would like to attach as Plaintiff's next in order this document which is a

multi-page document that bears the heading Testing Division, Owens Corning Fiberglas Corporation. And Plaintiff's next in order is Plaintiff's No. 26.
(Exhibit 26 marked.)
MR. TIGERMAN: Q. Sir, have you ever seen this document which bears Bates stamp numbers 01057102 through 01057119? Have you ever seen any of that before?
A. I think I've answered that already.
Q. Why don't you take a quick look through it.
A. If you're going to ask me questions about it, I have to do more than take a quick look through it.
MR. EVANS: He's already said he doesn't recall seeing it.
MS. CHABER: That's fine. You don't need to have him read it.
MR. TIGERMAN: Q. That's fine. Now, sir, have you ever been told by anybody that Owens Corning Fiberglas did any type of analysis on fiber release from asbestos-containing cigarette filters?
A. I have no recollection of that.
Q. Are you aware of any testing done in 1953 or 1952 where someone tapped a filter four times on a clean glass microscope slide to see whether or not there were fibers released from that filter?
MR. EVANS: I think he's answered that about four

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or five questions ago.
MR. TIGERMAN: Q. Go ahead.
MR. EVANS: You can answer it again if you want.
THE WITNESS: I have no recollection of that.
MR. TIGERMAN: Q. If indeed, sir, someone took a Kent Micronite filtered cigarette in 1953 and tapped it four times end-wise on a clean glass microscope slide and then observed what appeared to be particles emanating from the filter upon the surface of the slide, would you find that to be of interest?
MR. EVANS: Objection. Vague and ambiguous.
MS. ROENISCH: Also calls for speculation.
THE WITNESS: I don't know what you mean by of interest. In what way, please?
MR. TIGERMAN: Q. Would you find that to be of potential significance with respect to your opinion that Kent Micronite filters cannot and do not release fibers from the filters?
MR. EVANS: You're talking about just tapping on a glass filter?
MR. TIGERMAN: That's correct.
THE WITNESS: Well, let's again define what you want to ask with regard to release. We've defined several mechanisms for release. Which one are you asking me to respond to?

MS. CHABER: Any.
MR. TIGERMAN: Q. Any of them.
A. I can tell you that it would not influence my opinion regarding the release in airborne state from puffing on the cigarette.
Q. If indeed tapping a Kent Micronite filter four times end-wise on a clean glass slide resulted in particulate matter being observed upon the surface of the slide under a regular optical microscope, would you be interested in seeing that data?
A. Now, again, you asked me the same

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question which I
asked you to clarify with regard to what you meant by
interest.
Q. Would you want to see it?
A. Certainly, I'm interested in all kinds of information.
Q. Have you ever asked anybody from either Lorillard
or Hollingsworth & Vose or any of their counsel as to
whether or not any studies exist which you have not been
shown?
A. Studies of what?
Q. Any fiber release from any mechanism from a
filter-tipped cigarette.
A. My inquiries were related to airborne release of
respirable particles.

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Q. Sir, my question is --
MR. BRAKE: He's answered your question.
MR. TIGERMAN: Q. He has not answer the question.
MR. BRAKE: He has answered it.
MR. TIGERMAN: No, he has not.
MR. BRAKE: Yes, he has.
MR. TIGERMAN: Counsel, let me talk. Let me talk
and then you can talk. The question was "Have you ever
asked anybody from either Lorillard or Hollingsworth & Vose
or any of their counsel as to whether or not any studies
exist which you have not been shown?"
And his answer was "My inquiries were related to
airborne release of respirable particles." There is no
"yes," there is no "no."
MR. EVANS: There's no reason to raise your voice.
MR. BRAKE: All morning you've been doing this.
MR. TIGERMAN: Fine, Counsel. Don't jump in and
say he answered the question when he hasn't. You're
obstructing the deposition.
MR. BRAKE: Your whole day has been trying to
create a series of unfair inferences because you virtually
have nothing to cross-examine him about.
MR. TIGERMAN: Q. Sir, have you ever asked anyone
from Lorillard or Hollingsworth & Vose or any

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counsel as to
25 whether there are any studies which have been done of the

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1 filters on the Kent Micronite which you have not seen?
2 A. I answered that question as to what I have asked,
3 and the implication I think is quite clear that other
4 questions have not been asked.
5 Q. Have you ever asked them if there are any studies
6 you have not seen?
7 A. I've answered that.
8 Q. And the answer is you have not asked them?
9 A. The answer is I have asked them for all the
10 studies relating to airborne release of fibers from the
11 Micronite filter.
12 Q. Have you asked them whether there are any other
13 studies which have been done as to any particle release from
14 the Micronite filter which you have not seen?
15 A. I have no recollection of any other requests other
16 than pertaining to the matter I have just explained.
17 Q. All right. And have they told you that there are
18 any studies regarding any kind of particulate release from
19 Micronite filters which you have not seen? Have they told
20 you that there are such studies?
21 A. I don't have any recollection of yes or no.
22 Q. Have you ever been told or heard that there was a
23 study done by Owens Corning Fiberglas Corporation?
24 MR. EVANS: You asked him before. This has been
25 gone over. He doesn't know. He doesn't remember. He said

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1 it four times eight questions ago.
2 MR. TIGERMAN: Q. If tapping a Kent cigarette
3 filter on a slide four times end-wise released particulate
4 matter on the slide, could that affect your opinion as to
5 whether or not particles might be released from a Kent

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Micronite filter that are respirable?
MR. EVANS: And again, he's answered that question. And your question is vague unless you define what you mean by release. Do you mean release when tapped on a glass slide?
MR. TIGERMAN: Q. If particles would be released when the cigarette is tapped on the glass slide, sir, doesn't that mean particles can be released when somebody sucks on the end of the cigarette.
MR. EVANS: Objection. That's argumentative.
MR. TIGERMAN: Q. Go ahead. You can answer.
A. The answer to your question as I understand it is no. One thing has nothing to do with the other.
MS. CHABER: Why not?
THE WITNESS: Because you are using a different force to cause release of material. The force that you're able to apply to the filter by inhaling is not the same as the force that you can apply to the cigarette by tapping it on a flat surface. You're doing two different things.
MR. TIGERMAN: Q. Wouldn't you want to know how

hard it was tapped?
MR. EVANS: Objection. Argumentative.
MR. BRAKE: Wouldn't you want to know what the fibers are? Wouldn't you want to know a lot of things? Why don't you guys wrap it up.
MR. TIGERMAN: Q. Sir, wouldn't you want to know how hard the cigarette was tapped before it could release fibers from the filter before you would make the determination that it was a different amount of force than is exerted by sucking on the end of the cigarette?
A. I don't believe that that's relevant.
Q. So it doesn't matter to you whether or not the cigarette is tapped hard, soft, medium? Tapping is just entirely different than sucking on the end of the filter tip?
MR. EVANS: Objection. That's argumentative.

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17 Misstates his testimony. He's already testified that a test
18 regarding tapping on a glass filter has nothing to do with
19 whether any fibers would be released during smoking. That's
20 his testimony. He's already gone over it.
21 MR. TIGERMAN: Q. What if you tap a cigarette
22 before you smoke it? Could that affect whether or not
23 fibers might be released from a filter?
24 MR. EVANS: During normal smoking?
25 MS. ROENISCH: Or during the tapping?

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1 MS. CHABER: Either.
2 THE WITNESS: What's the question?
3 MR. TIGERMAN: Q. If someone taps a cigarette
4 before they smoke it, might that affect the ability of the
5 filter to release particulate matter from the filter itself?
6 A. During smoking you mean?
7 Q. Yes.
8 A. In my opinion, it would not influence it, no.
9 Q. So if tapping a cigarette on a glass slide is
10 capable of dislodging particulate matter from the filter
11 which can be viewed upon the slide itself, you do not
12 believe that if a person taps a cigarette and then
13 subsequently sucks on it, that they will inhale any fibers?
14 Is that correct?
15 MR. EVANS: Misstates his testimony. It's
16 argumentative and he's asked and answered -- he's answered
17 that question at least once, maybe twice. He's testified
18 that it has no basis -- or no bearing on his opinion.
19 MR. TIGERMAN: Q. Sir, have you ever tapped a
20 Kent Micronite filter on a slide?
21 A. I have not.
22 Q. Have you ever observed anybody do that?
23 A. I have not.
24 Q. Have you ever heard that anybody has done that?
25 A. I have not been informed that that was the

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1 practice of someone.

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Q. Are you aware of whether or not any companies anywhere have ever tapped any cigarette filters on any slides to observe whether particulate matter was emitted from the filter?
MR. EVANS: Objection. This has been asked and answered.
THE WITNESS: I have no knowledge of what you're asking.
MR. TIGERMAN: Q. Sir, have you ever seen any photographs of any slides or copies of any photographs of any slides which contained particulate matter from any cigarette filter?
A. Are you referring to the article that you just showed me?
Q. Yes.
A. I've already told you I am not familiar with that article.
Q. And you've never seen any of the photographs contained therein?
MR. EVANS: If he can't remember it, he can't remember it.
MR. TIGERMAN: All right. I just want to make sure that you haven't seen part of it or you haven't seen just photographs about whether or not --

Q. So my question is have you ever seen any photographs of any slides from anywhere at any time which contain particulate matter from the ends of filter tipped cigarettes?
A. I've seen Dr. Longo's photographs, if that's what you're referring to.
Q. All right. But no others? Is that correct?
A. I've seen Dr. or Mr. Fullam's.
Q. And Mr. Fullam also took photographs of material that was on slides? Is that correct?
A. Not on glass slides, no. These were photographs of material under the electron microscope.
Q. Have you ever spoken with Mr. Fullam about any of that?

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15 A. No.
16 Q. Have you ever wanted to speak with Mr. Fullam
17 about how he did his tests?
18 A. I don't understand what you mean by did I want to
19 talk to him.
20 Q. Have you ever thought about it, thought, "Well, it
21 might useful to give Mr. Fullam a call and discuss what he
22 did"?
23 A. It's my understanding that Mr. Fullam is not
24 really available for that sort of thing.
25 MS. CHABER: What about Hallgren.

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1 MR. TIGERMAN: Q. What about Hallgren? Have you
2 ever talked with him?
3 A. I have not.
4 Q. Have you ever wanted to?
5 A. No.
6 Q. Has it ever been suggested by anybody that it
7 might be useful for to you talk to somebody who was actually
8 there?
9 A. No.
10 Q. Are you familiar with Hallgren's testimony and
11 what he testifies he observed?
12 A. Not in this particular case. I have not seen his
13 testimony in this case.
14 Q. Well, in any case?
15 A. Yes.
16 Q. And do you believe that what he observed was
17 contamination as opposed to asbestos from the filter?
18 A. I think there's a good probability that it's
19 indistinguishable from contamination.
20 Q. And where do you believe this contamination
21 actually came from?
22 A. It came from the same places it always does. It
23 comes from the air, it comes from the materials that are
24 being used, it comes from the solutions, it comes from the
25 grids and anything that is used in the process or can be

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1 present in the environment.

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Q. All right. What's the specific source in this instance?
A. All of these are possibilities.
Q. And what is the probable source or sources?
A. I cannot identify those.
MR. EVANS: Excuse me. We're getting close to wrap-up time?
MR. TIGERMAN: Yes, we're getting close to wrapping this up.
MR. EVANS: As in two minutes?
MR. TIGERMAN: As in two minutes.
Q. And sir, with respect to what you believe may be contamination in the work that Hallgren did, when did you form the opinion that this was possible contamination?
MR. EVANS: You have just misspoken. You meant the work that Fullam did?
MR. TIGERMAN: Fullam.
THE WITNESS: Let me clarify that. What I said specifically and what I wanted to say specifically is that his counts are indistinguishable from contamination.
MR. TIGERMAN: Q. What do you mean?
A. That the contamination level expected is the same order or higher than what he reports for fibers.
Q. Do you know whether or not he undertook any

efforts to minimize the potential for contamination?
A. There is no record that he did.
Q. And so you believe that what was observed was just material that was floating around in the background that landed on a surface?
MR. EVANS: Objection. Misstates his testimony. It's argumentative.
MR. TIGERMAN: Q. Well, where did this contamination come from?
MR. EVANS: He already told you. He answered that question.
MR. TIGERMAN: Q. Right. Was it in the background?
A. What do you mean by background?
Q. Was it just floating around in the --
A. We already have defined background as the number

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of fibers in the outside air.
Q. Right. Was it from background that he observed these fibers?
A. I told you I could not identify the specific source of contamination and that my opinion is that the numbers that he reported were indistinguishable from contamination from all sources.
Q. When did you form the opinion that there might have been contamination?

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A. I think you're misspeaking me.
MR. EVANS: One more question.
MR. TIGERMAN: Q. Do you believe there might have been contamination?
A. I stated quite specifically that the numbers are indistinguishable from contamination.
Q. Right. But do you believe there was contamination?
A. I believe there very well could have been.
Q. When did you form the opinion that there very well could have been contamination?
A. I have always known that with regard to electron microscopy as well as for optical microscopy as well as for any other test procedure that one has to engage in.

Contamination is a constant problem in all types of analytical work.
MR. EVANS: Let me interrupt for a second. We have bean here for 2 hours 15 minutes. We were told it was going to last two hours. We've given you an additional 15 minutes.
MS. CHABER: Ten minutes of which were a break.
MR. EVANS: And I think that's standard for deposition. And five minutes of the ten-minute break was because you guys wouldn't come back.
MR. BRAKE: Let's not get into that. The last question was specifically he wanted to know with regard to

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when did you reach the opinion with regard to the Fullam results. Right?

MR. TIGERMAN: Yes.

MR. EVANS: Did you answer that question?

THE WITNESS: No.

MR. EVANS: Go ahead and answer that question.

THE WITNESS: Oh, perhaps within the past year.

MR. TIGERMAN: All right. Thank you.

EXAMINATION BY MR. BRAKE

MR. BRAKE: Let's just make the record a little clearer on that one.

Q. You testified as to the same opinion in the Frost case in San Francisco two years ago? Do you remember that?

MR. TIGERMAN: Objection. Leading.

MR. BRAKE: It's a fact, like Pearl Harbor day, beyond dispute --

MR. TIGERMAN: Objection. Leading.

MR. BRAKE: -- that the man testified to this very thing in the Frost case. If I have to bring it out, I will, if you guys try to suggest it's a recent fabrication.

MR. TIGERMAN: Fine.

MR. EVANS: Do you have payment for Dr. First?

MR. TIGERMAN: We'll get that.

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(Whereupon the taking of the Witness' testimony was concluded at 11:17 a.m.)

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DATE SIGNATURE of the WITNESS

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